

Appl. No. 10/664,318

Amdt. Dated August 8, 2005

Reply to Office Action of May 6, 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A waterjet propulsion apparatus comprising, in combination:
 - a rotor comprising a plurality of rotor blades coupled to a hub, said rotor blades ~~further each~~ having a tip ~~wherein each rotor blade is~~ and each being shaped so as to have uneven loading from the hub to the tip;
 - wherein said rotor has five said rotor blades;
 - a first housing section surrounding said rotor further having an interior surface and wherein said rotor blades are disposed within first housing section so that the tips of the rotor blades define a clearance with respect to the interior surface of the first housing section;
 - wherein a clearance between each rotor tips ~~of said rotor blades~~ and an interior surface of said first housing section is within the range of about 0.050" and 0.150";
 - a stator comprising a plurality of stator blades coupled to a stator hub;
 - wherein said stator has eight blades coupled to said stator hub; and
 - a second housing section surrounding said stator.
2. (original) The apparatus of Claim 1 wherein a total weight of said rotor blades is between about 110 to 120 lb.
3. (previously presented) The apparatus of Claim 2 wherein the total weight of said rotor blades is about 114 lb.
4. (original) The apparatus of Claim 1 wherein total blade area of said rotor blades is between about 800 in² to 900 in².
5. (original) The apparatus of Claim 2 wherein total blade area of said rotor blades is about 854 in².

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6. (canceled).

7. (original) The apparatus of Claim 5 wherein clearance between tips of said rotor blades and said interior surface of said first housing section is approximately 0.050".

8. (original) The apparatus of Claim 1 wherein said second housing section defines a combined stator housing and nozzle.

9. (original) The apparatus of Claim 7 wherein said second housing section tapers to form an upstream end having a first diameter to a downstream end having a second diameter that is smaller than said first diameter.

10. (previously presented) The apparatus of Claim 8 wherein said stator hub further defines a downstream end and wherein said second housing section further defines a downstream end; and wherein the a downstream end of said stator hub extends downstream of said downstream end of said second housing section.

11. (previously presented) The apparatus of Claim 10 wherein said second housing section defines an internal diameter and wherein an internal diameter at a downstream end of said second housing section is in the range of from about eight to about ten inches.

12. (previously presented) The apparatus of Claim 11 wherein said internal diameter is about 8.85 inches.

13. (previously presented) The apparatus of Claim 1 wherein said stator blades further define a trailing end and wherein said second housing section further defines a downstream end; and wherein the distance from the trailing end of said stator blades and the downstream end of said second housing section is in the range of from about one to about two inches.

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14. (previously presented) The apparatus of Claim 13 wherein said distance is about 1.29 inches.
15. (currently amended) A waterjet propulsion apparatus comprising, in combination:
a rotor comprising a plurality of rotor blades coupled to a hub, each rotor blade
~~further~~ having a tip ~~wherein~~ and each rotor blade is being shaped so as to have nonuniform
loading as measured from the hub to the tip of each rotor blade;
wherein said rotor has five said rotor blades;
a first housing section surrounding said rotor;
wherein clearance between tips of said rotor blades and an interior surface of said
first housing section is within the range of about 0.050" and 0.150";
a stator comprising a plurality of stator blades coupled to a stator hub;
wherein said stator has eight blades coupled to said stator hub; and
a second housing section surrounding said stator;
wherein a distance from a trailing end of said stator blades and a downstream end of
said second housing section is in the range of from about one to about two inches; and
wherein an internal diameter at a downstream end of said second housing section is
in the range of from about eight to about ten inches.
16. (previously presented) The apparatus of Claim 15 wherein clearance between tips of said
rotor blades and said interior surface of said first housing section is approximately 0.050".
17. (previously presented) The apparatus of Claim 15 wherein said second housing section
defines a combined stator housing and nozzle.
18. (previously presented) The apparatus of Claim 15 wherein said internal diameter is about
8.85 inches.
19. (previously presented) The apparatus of Claim 15 wherein said distance is about 1.29 inches.

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20. (currently amended) A waterjet propulsion apparatus comprising, in combination:
- a rotor comprising a plurality of rotor blades coupled to a hub, each rotor blade further having a tip and being shaped so that the loading on each rotor blade at the tip is ~~greater than the loading on the rotor blade at~~ and the hub is nonuniform;
 - wherein said rotor has five said rotor blades;
 - wherein a total weight of said rotor blades is about 114 lbs;
 - wherein total blade area of said rotor blades is about 854 in²;
 - a first housing section surrounding said rotor;
 - wherein clearance between tips of said rotor blades and an interior surface of said first housing section is within the range of about 0.050" and 0.150";
 - a stator comprising a plurality of stator blades coupled to a stator hub;
 - wherein said stator has eight blades coupled to said stator hub; and
 - a second housing section surrounding said stator;
 - wherein said second housing section defines a combined stator housing and nozzle;
 - wherein said second housing section tapers to form an upstream end having a first diameter to a downstream end having a second diameter that is smaller than said first diameter; and
 - wherein a downstream end of said stator hub extends downstream of said downstream end of said stator housing.
21. (original) The apparatus of Claim 20 wherein clearance between tips of said rotor blades and said interior surface of said first housing section is approximately 0.050".
22. (canceled)
23. (canceled)
24. (original) The apparatus of Claim 20 having a pressure rise of approximately 99.4 ft H₂O of approximately 16 mph watercraft speed.

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25. (original) The apparatus of Claim 20 having a water flow of between approximately 95 to 105 ft³/sec at approximately 16 mph watercraft speed.